

SECTION 02751

PORTLAND CEMENT CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete sidewalks and stair steps.

1.02 RELATED REQUIREMENTS

- A. Section 03300 - Cast-in-Place Concrete.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International; 1991 (Reapproved 2002).
- B. ACI 305R - Hot Weather Concreting; American Concrete Institute International; 1999.
- C. ACI 306R - Cold Weather Concreting; American Concrete Institute International; 1988 (Reapproved 2002).
- D. ASTM C 39/C 39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2005.
- E. ASTM C 94/C 94M - Standard Specification for Ready-Mixed Concrete; 2007.
- F. ASTM C 173/C 173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2008a.
- G. ASTM C 309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2007.
- H. ASTM D 1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2008).

PART 2 PRODUCTS

2.01 FORM MATERIALS

- A. Wood form material, profiled to suit conditions.
- B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751).
 - 1. Thickness: 1/2 inch.

2.02 REINFORCEMENT

- A. Reinforcing Steel and Welded Wire Reinforcement: Types specified in Section 03300.

2.03 CONCRETE MATERIALS

- A. Concrete Materials: As specified in Section 03300.

2.04 ACCESSORIES

- A. Curing Compound: ASTM C 309, Type 1, Class A.

2.05 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Concrete Properties:

1. Compressive Strength, when tested in accordance with ASTM C 39/C 39M at 28 days: 3500 psi.
2. Total Air Content: 4 percent, determined in accordance with ASTM C 173/C 173M.
3. Maximum Slump: 3 inches.

2.06 MIXING

- A. Transit Mixers: Comply with ASTM C 94/C 94M.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.
- B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

- A. Prepare subbase in accordance with State of Virginia Highways standards.

3.03 PREPARATION

- A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
- B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
- C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

- A. Place reinforcement at bottom of slabs-on-grade.

3.06 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.07 PLACING CONCRETE

- A. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

3.08 JOINTS

- A. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components.
 1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
 2. Secure to resist movement by wet concrete.
- B. Provide sawn joints:
 1. At 3 feet intervals.
- C. Saw cut contraction joints 3/16 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.09 FINISHING

- A. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.
- B. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

3.10 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION